DOCUMENT RESUME

ED 253 811 CG 018 014

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TITLE Opinions from a Sample of Counselor Educators about Microcomputers.
PUB DATE Oct 84
NOTE 20p.; Paper presented at the Annual Meeting of the Northern Rocky Mountain Educational Research Association (2nd, Jackson Hole, WY, October 4-6, 1984).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Assisted Instruction; *Computer Oriented Programs; *Counselor Educators; Counselor Training; Higher Education; *Microcomputers; Surveys; *Use Studies

ABSTRACT

Within counselor education, attention to computer-assisted instruction, and to the use of microcomputers is just beginning. To collect information about counselor educators' use of microcomputers and to solicit opinions about the possible influence of this technology on counselor education curriculum and programming, a questionnaire was sent to 180 counselor educators stratified by rank and degree program; 88 questionnaires were returned. A shortened version was sent to those who had not replied in the first sample and to a new sample of 90 persons, producing an additional 73 returns for an overall sample of 161. Results showed that a microcomputer was available at work to 72.3 percent of the respondents. Of that group, 59.1 percent used the equipment for one or more purposes. Of those who used a microcomputer at work, 75.4 percent did word processing. The next most common usage (50.7 percent) was instructional enhancement. The curricular components most often mentioned as likely to change were career/educational information (N=38), measurement/evaluation (N=24), and research/statistics (N=23). Interactive programs were mentioned by six respondents. Forty-eight respondents indicated they were investigating acquiring a personal system, 47 stated plans to take a course, workshop or other training, and 27 stated they had no plans to develop any microcomputer involvement. While the opinions of counselor educators were diverse, there were no differences across rank/age groups or programs. (LLL)

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Opinions from a sample of counselor educators about microcomputers

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Microcomputers have become widely accessible. Most of the machines have capabilities to execute not only entertainment programs, but increasingly, business related and educational programs. Some of these programs have been adapted from larger computer formats, while many others have been written directly for use on personal computers, as microcomputers with such programs have come to be called when used for purposes beyond entertainment and/or education.

The need to know about computer programs, including those designed for microcomputers in schools, is becoming ever more important for educational personnel, including school counselors. Gaushell (1984) discussed uses of microcomputers in the administration and management of student services programs in schools. Career information systems have been available on main frame computers for some time (Fredrickson, 1982). Students have been used as peer counselors with the CHOICES program for career counseling (France & McDowell, 1982). A microcomputer has been used to provide information to community members about the mental health facility serving the area (Abernathy, 1979). Schoech and Schkade (1980) discussed potential benefits of, and problems in developing, a computer-based decision support system for assisting caseworkers in field settings.

As early as 1977, Loughary projected technological enhancements for counseling including test information storage and retrieval, occupational and educational information systems, and biofeedback training, among others. Sampson (1983) discussed systems of computer-assisted testing and assessment: "Preservice graduate training programs and inservice professional development programs need to include exposure to computer-assisted testing and assessment systems" (p. 298). Topics

suggested for inclusion were: systems designs, research and evaluation of data, ethical issues, how to use equipment and programs, new developments, and actual experience. In discussing changing aspects of information systems in society, Cianni-Surridge (1983) noted the necessity that counselors become knowledgeable about computers and the programs they can run.

The use of computers in schools is not without concern. Altemose & Williamson (1981) discussed the import computers could have on school psychology, and reminded this writer of analogous expressions that were voiced about career counseling when computer-based occupational information and query systems first began to appear some 20 years ago. McLean and Kapkin (1983) noted that use of computers is not necessarily an improvement on previous practices. Counselors must be alert to ethical considerations (Sampson & Pyle, 1983). Unauthorized access to personal records, invasion of privacy risks and other concerns are involved. A direct consequence is that counselors must be involved in all computer-assisted programs of guidance or assessment, even when the programs do not require direct supervision. Thus, counselors must both know the programs and be able to operate them.

Practitioners have been confronted with finding various ways to become informed and skilled in computers and related technology. Schoech and Arangio (1979) concluded that, at least five years ago, the academic community was behind in exposing pre-service as well as in-service people to computer concepts and practices. Childers and Podemski (1984) asserted that, to be members of the instructional team, school counselors must become adept operators of various microcomputer programs, even though doing so is rather foreign to the people-oriented nature of many persons who

elect counseling as a career. If a familiarization course is not taken pre-service, then the counselor faces having to find in-service opportunities to get these added knowledges and skills.

Computer Assisted Instruction

Numerous instances of computer assisted instruction in the social and behavioral sciences have been reported. Burton (1979) described a computer based procedure for teaching history. Computers have been used in undergraduate instruction in research aspects of political science (Comer, 1979), in an economic principles course (Henry & Ramsett, 1978) and for teaching problem-solving (Wagman, 1982). Case management in rehabilitation has been simulated (Berven & Scofield, 1980). Krichnoff and Holzemer (1979) discussed computer use in nursing education. Computer-based clinical diagnosis instruction in medical education was discussed by Miller and Schaffner (1982).

Within counselor education, attention to computer assisted instruction, and to the use of microcomputers on a widely involved basis, perhaps is just beginning. L. C. White (1980) reported survey results from 21 counselor educators. Apparently knowledge and skill related to computers was not a component in evaluation of counselor education students. Ibrahim and Thompson (1982) received 43 replies to a survey about preparation of secondary school counselors. The need for computer training was not among their findings. The importance of exposure to computers can be inferred from the recommendations for training of counselors in the 1980s presented by Myers (1982). Phillips (1983) reviewed ten years of developments involving computers. Computer technology was deemed to have substantial potentials in counselor education in several curricular aspects, including client

assessment, planning interventions and simulating client-counselor interchanges.

Proliferation of low cost microcomputers with more and more capabilities has made this technology increasingly feasible and attractive. A microcomputer system including a large capacity storage device, viewing screen, and printer can be had for about the cost of a business office typewriter. Machines with even greater speed, storage volume and program capabilities are appearing. Until the advent of these low cost systems with enough capacity to run extensive, especially interactive programs suitable for simulating counseling, experimentation and development had to be done on the relatively few, large (main frame) computers available to faculty in higher education. Access often was limited and other costs tended to be prohibitive. Little training was available, and that mostly through tutoring and self-teaching.

Methods and Procedures

The purpose of the study reported here was to collect information about the involvement of counselor educators in 1984 with microcomputer technology, to discover the various uses that were being made of microcomputer sytems and programs, and to solicit opinions about impending influences of this technology on counselor education curriculum and programming. Respondents also were invited to express their views and estimates of attitudes among faculty and students toward this technological area. A questionnaire was devised to solicit self-report information about these topics.

This instrument was sent to a random sample of counselor educators stratified by rank and degree offering in the person's department (doctorate vs non-doctorate). Care also was taken to insure geographical coverage and

that private institutions programs were represented. Of the 180 instruments sent originally, 88 were returned completed and seven were refused or not delivered. Results of a preliminary analysis indicated the questionnaire could be shortened with no loss of basic information. The short instrument was sent to the 85 persons who had not replied initially and to a new sample of 90 persons also stratified by rank and degree program. The follow-up of the original group, and returns from the second group, also followed up once, produced an additional 73 returns, for an overall sample of 161. These returns, when grouped in various ways, became the bases of the quantitative findings. Written observations and opinions were studied for subjective amplifications and estimations of trends and issues.

Stratifying the sample by faculty rank and degree offered allowed intra-sample comparisons, as did ownership vs non-ownership of a microcomputer system.. Some other exploratory comparisons also were made. Analysis procedures used were Chi-square for all frequency data, and analysis of variance for scaled items.

No comparisons produced any significant separations at .05. The over-all findings thus can be taken as descriptive of counselor education without concern about differences among ranks, and thus somewhat of age, and between degrees offered.

A microcomputer was available at work to 72.3 per cent of the respondents. Of that group, 59.1 per cent used the equipment for one or more purposes. Having a personally owned system also was indicated by 33.8 per cent of the sample. Only 36 of 156 persons who replied to both items (access at work; having a machine at home) claimed no access to a system. Slightly over three-fourths of these counselor educators had access to at least one

microcomputer system, although work access was the major source.

Respondents were asked to estimate the department, college or larger unit and over-all institutional climate about the use of microcomputers. No differences were found across the three levels of administrative units. The perception of climate was one of qualified encouragement. Respondents also were asked to estimate attitudes of faculty, graduate students, and undergraduate students as groups, as an alternate means of assessing climate. Faculty were not perceived as less positive than students, either graduate or undergraduate. Young people are said to adjust more easily to computers (Inman, 1983), but if so, faculty in this sample generally did not exhibit an attitudinal basis for this often claimed difference. The general estimate of attitudes about microcomputer use was moderately positive for all three groups.

Of the 69 respondents who declared both access to and use of a microcomputer at work, 52, or 75.4 per cent, did word processing. The next most common usage (50.7 per cent) was instructional enhancement. Most frequently cited instructional uses were in testing and assessment courses and to demonstrate occupational-educational information systems. For both data analysis and administrative tasks, 42 per cent reported these usages, while 29 per cent used the equipment as a terminal to another computer. Only four people used the equipment for telecommunications purposes.

Respondents were asked to speculate about curriculum changes that would be caused by involvement with microcomputers and microcomputer programs. Change was predicted by 57.8 per cent of the 161 respondents; 33.5 per cent predicted no change, and 8.7 per cent made no response. No differences were observed when responses were grouped by rank or degree program of

respondents, although the largest proportion of "yes" responses occurred among professors in doctorate faculties. The curricular components most often mentioned as likely to be changed, or changed further, were: career/educational information (n = 38), measurement/evaluation (n = 24), and research/statistics (n = 23). Interactive programs (i.e. Eliza specifically mentioned) were suggested by six respondents. Interactive programs are those written with multiple branching contingencies dependent on response inputs selected by the user and recognizable in the program.

Respondents were asked to share any plans they personally had about using microcomputers in the next few years, getting exposure to equipment and programs, developing programs or curricular uses, etc. (allowing for individual statements). Forty-eight respondents indicated they were investigating getting a personal system; 47 stated plans to take a course, workshop or other training. Twenty-seven stated they had no plans to develop any involvement and 20 did not respond to this item. As reflected throughout responses to the survey, a substantial minority of the sample evidently did not regard microcomputer systems as bearing on counselor education or/and on them in their work. A substantial majority, however, was involved or was planning to be involved and expected substantial changes to occur in counselor education curriculum components because of this technology.

Comments by various respondents, while quite subjective and idiosyncratic, and as selected by the writer, nevertheless provide insight into the diverse attitudes and views counselor educators hold about computer technology -- microcomputer technology in particular. Concerning views about the curricular import of microcomputers in the next few years, one assistant professor wrote, "I see them used in nearly every course." A

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professor writing about changes in the next ten years said, "The changes will be drastic, and I don't venture a guess." Another professor cited a program a graduate student wrote in which a 50-minute therapeutic session was simulated. Another assistant professor wrote, "For training in counselor education, computer assisted simulation should vastly improve pre-practicum training; this could become the psychotherapist's cadaver for practicing without harming clients."

Concern, hesitancy and reservation also were expressed. One associate professor expressed the apprehension that this technology would result in "less concern with human relationships, and with counseling as a human relationship." Another professor remarked about involvement ten years ago with computer-based guidance systems. "After 10 years, this idea, though feasible, is still not off the ground. I'm now pessimistic, but not cynical." An associate professor on a campus where the chancellor was pressing all faculties to develop "comput. lit" wrote, "Thus, we have been doing some reading and discussion and are planning to have a consultant in to discuss it with us. So far, we are all a little skeptical."

An assistant professor replying to the query about personal plans indicated none, and amplified with "I think the computer is useful but over-rated." An associate professor noted that, "In my administrative position we are seeing much greater movement toward computer systems than academic departments such as counselor education." Another wrote, "No plans; I think computers are over-rated, especially in my field, which emphasizes personal helping skills; only big advantage I see is word processing." A professor wrote, "I would plan only limited use, mostly in elementary statistics -- to demonstrate." On the other hand, an assistant

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professor stated in reference to work with handicapped persons, "To them, the computer opens a whole host of possibilities, especially in the area of communications; some of my clients couldn't even be clients were it not for communications equipment based on microcomputers."

Obviously, opinions among counselor educators are diverse. An interesting finding is the absence of differences across rank/age groups and programs. Accessibility is quite high, and increasing, several respondents noting personal and/or department plans to get systems. Many persons noted that their involvement was very recent, which they stated limited their ideas about applications in their work. The fact that so many respondents indicated plans to begin active involvement, or up-grade their involvement suggests that a general knowledge base among counselor educators is building rather rapidly. The most frequent usage was in word processing, and probably will continue to be, for various purposes such as course test construction, correspondence, manuscript work, and other document creation activities. Other uses may be developed more slowly, depending substantially on how quickly programs are created or adapted for such purposes as simulations and interactive modeling of counseling interchanges.

Discussion

In higher education generally, personal computers as most frequently used in teaching are for mathematics computation (60 per cent), doing simulations (46 per cent) and presenting instructional information (Magarrell, 1983). Specifically in sociology, computers were more used in graduate degree granting programs than in departments granting the bachelor's only. Faculties in university settings reported about twice the frequency of involvement reported by faculty in bachelor's programs (Anderson, 1981). About 43 per

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cent of counselor educators reported one or more on-the-job uses of a microcomputer. Several others reported using institutional "main frame" or other systems. These data suggest an involvement that may be somewhat less than in sociology, quite possibly because research and/or statistics courses often are taught outside of counselor education, but are within most sociology curricula. The Anderson (1981) data show the most use in junior level courses, presumably where the computational courses in bachelor's programs are usually located.

Some shift to use of computer technology for interactive instructional purposes was detected but the biggest use, and likely to remain so for some time, was for data analysis. Uses in counselor education suggest a similar pattern, although interactive uses were little mentioned in the comments of respondents. Anderson (1981) concluded from the sociologist sample, "The broad potential of the computer has not yet been realized in sociology" (p. 189). That assessment seems to describe the counselor education situation in 1984, and for the same basic reason, namely that instructional models were not being developed.

Phillips (1983) discussed the characteristics of computer systems generally that are limitations restricting adaptation of computer technology to instruction in counselor education. Even with the limitations of having to build programs around words and language, or other symbolic expressions, programs emulating various presenting problems can be written in an interactive mode. Such programs, directed at the general public, and written for microcomputer systems, were beginning to appear in large numbers in 1984 (Caruso, 1984; Karten, 1984). Such programs were being called "life enrichment software" (Caruso, 1984, p. 34), and were being designed to

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accept decision responses from one or more users, resulting in a multiple branching sequence, with display of results to the users. These programs are data based to various extents, but are increasingly sophisticated both in the data base resident in the program and in the branching alternatives incorporated. These programs are of the self-help variety (Caruso, 1984) but are examples of programming readily adaptable to various components of the counselor education curriculum.

Karten (1984) expressed concern about these "psychware programs" (p. 7) as well as speculating about public acceptance of these interactive programs that are more like an adventure game than like the hand-eye coordination, speed-of-reaction, arcade games that dominated the first decade and a half of microcomputer programming. In addition to Eliza which has been adapted to microcomputers, recently issued progams are Mind Prober, a program that one can use to estimate another person's attitudes on several dimensions, Childpace and Discover Your Baby designed around child guidance strategies and intended to produce improved parenting, Coping with Stress, and The Party which is meant to help adolescents understand bodily results from drinking alcohol. Experimentation is being done with programs that induce and work through hypnotic states. A highly interactive programming procedure, called Skipi "will supposedly allow users to learn about aspects of their personalities via various combinations of 'memes,' which [Timothy Leary] says are the genes of personality" (Caruso, 1984, p. 39). Telepsych has been offered through which anyone with a modem equipped computer can send a problem description and in a few days can 'download' the reply placed in the user's account in a host computer. Payment is by the word for problem statement sent and reply provided (Scuttlebutt, 1984).

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These rapidly developing aspects of microcomputer technology suggest that most practicing counselors must become informed about such programs. A reasonable anticipation is that a significant number of adverse results will occur among the general public from using these programs. Concern and speculation have been expressed in the current microcomputer literature about such uses (Fact or Fiction, 1984). A situation in the mid-1980s seems to be developing with substantial parallels to the group processes events of the mid-1960s. Counselor education faculties can ill afford avoiding this activity, underestimating possible results, or defaulting to other helping occupations. Not all counselor educators need be directly involved, but at least some persons should become knowledgeable. The counselor education curriculum should include exposure to a sample of programs, especially those of the interactive, self-help sort likely to be used by the general public. Research already has been presented showing that people will reveal as much or more 'to a computer,' and as readily if not more more so, than to a skilled interviewer (Angle, Johnson, Gebrankamper, & Ellinwood, 1979; Klingler, Miller, Johnson, & Williams, 1977; Slack & Slack, 1977).

Counselor education faculties are going to have to find a place in the curriculum for an appropriate 'computer program literacy' component. Computer literacy, to include actual program writing capabilities, probably is not necessary, but knowing about running programs, and being able to evaluate program content as it is presented via the computer, appears to be increasingly important. Finding a place in the curriculum will not be easily done or comfortable (Pipes, Burkhalt, & Merrill, 1983). Erdman, Greist, Klein, Jefferson, and Getto (1981) discussed various aspects and issues involved in introducing computer technology into psychiatry and psychology; these ideas

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can be extended directly to counselor education. They suggested that small systems may be best suited for clinical training. A major barrier to development of training programs appears to be that very few members of the helping occupations faculties are knowledgeable about actual program writing. In the present study only about a dozen people, fewer than one per cent, mentioned any experience with programming, and/or interest in this area. Some sort of shared partnership arrangement may be required for the development of interactive training programs, one side supplying the counselor education substantive ideas and information, the other supplying the programming capability.

However, with very little direction and assistance, any counselor educator can become sufficiently skilled and adept at running any interactive program, and is prepared already to cope with the content of most such programs. As already argued, very shortly every person completing a counselor education program at the master's level should have at least an awareness of computer technology, with specific attention to interactive programs, which are almost certain to become more and more sophisticated and will be written about every aspect of inter-personal behavior and intra-personal dynamics and functioning. The potential for enriching and extending counselor education appears to be inherent in computer technology, and within the reach of all programs through low-cost microcomputer systems. The potential for harm to individuals in the public also is emerging. For these and other reasons, including sheer efficiency in coping with work loads, counselor educators, at least a significant number of them, should develop computer related competencies. Counselor educators appear to be facing the dilemma and task of finding a place in the curriculum for at least computer program literacy.

They also must provide expanding ethics and professional practice awarenesses, and codes, to support practitioners in dealing with situations they will be finding in their day-to-day work. Some departments should support actual program development and programming skills opportunities, thereby increasing the liklihoods that responsible programming can and will occur and can be monitored authoritatively. An important goal to be sought is enough knowledge developed and sustained among counselor educators so that effective leadership also will occur.

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